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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,051	04/27/2001	William A. Weber	2001B035	2702

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ExxonMobil Chemical Company
P.O. Box 2149
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EXAMINER

DANG, THUAN D

ART UNIT	PAPER NUMBER
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1764

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DATE MAILED: 11/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/844,051

Applicant(s)

WEBER ET AL.

Examiner

Thuan D. Dang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, "less than 5 wt% of disproportionation products other than benzene and diisopropylbenzenes" is indefinite since it is unclear if "disproportionation products other than benzene and diisopropylbenzenes" includes only compounds produced by only disproportionation (desired and by-products) or also all of compounds except benzene and diisopropylbenzenes in the effluent without separation. Further, it is unclear which compounds are considered to be products of disproportionation other than benzene and diisopropylbenzene

Regarding claim 4, "substantially free of benzene" and "substantially free of sulfided hydrogenation metal" is indefinite since how much of these are considered to be "substantially free".

Also regarding claim 4, it is unclear what kinds of metal are considered to be "hydrogenation metal".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as anticipated Kaeding (EP 0149508).

Kaeding discloses a process of disproportionation of cumene in the presence of a molecular sieve catalyst to produce a mixture containing an effluent containing meta, para-diisopropylbenzene and benzene wherein the effluent contains less than 1 wt% of ortho-DIPB of the total diisopropylbenzene, less than 1 wt% of n-propylbenzene, no triisopropylbenzene and less than 5 wt% of others other than benzene and diisopropylbenzene (the abstract; table 1, column numbered 4).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaeding (EP 0149508).

Kaeding discloses a process as discussed above.

Kaeding does not disclose a product having a meta/para ratio as called for in claims 2 and 3. However, it is noted from table 1 on page 8 that the ratio of para/meta DIPB changes when parameters including temperature and conversion are changed. Therefore, it is clear that there is a relationship between the selectivity of the products and the temperature and the conversion.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Kaeding process by optimizing the temperature and conversion to arrive at the applicants' claimed product which have meta/para DIPB ratios in excess of 50 and 100 as called for in claims 2 and 3 since it has been held by the patent law that the selection of reaction parameters such as temperature and concentration would have been obvious. More particularly, where the general conditions of the claimed are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller* 105 USPQ 233, 255 (CCPA 1955). *In re Waite* 77 USPQ 586 (CCPA 1948). *In re Scherl* 70 USPQ 204 (CCPA 1946). *In re Irmscher* 66 USPQ 314 (CCPA 1945). *In re Norman* 66 USPQ 308 (CCPA 1945). *In re Swenson* 56 USPQ 372 (CCPA 1942). *In re Sola* 25 USPQ 433 (CCPA 1935). *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

Claims 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suggitt (3,780,123).

Suggitt discloses a process of disproportionation of cumene in the presence of a MOR catalyst to produce a product containing benzene and a mixture of diisopropylbenzene.

It appears that Suggitt discloses using a feed containing no benzene (see the entire patent for details).

On column 8, lines 47-55, Suggitt mentions that the catalyst may contain a very small amount of metals (see the above 112 rejection).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Suggitt process by making catalysts containing very

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small amount of VIII metals such as 0.2 wt % or even less than 0.2 wt % so that it is considered to be "substantially free" to arrive at the applicants' claimed process since it is expected that the Suggitt catalysts containing any amount of VIII metals provided that there is the presence of VIII metals in the catalyst has similar activities (col. 8, lines 47-49).

It appears that Suggitt does not disclose a mordenite as called for in claim 8. However, It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Suggitt process by selecting a mordenite as called for in claim 8 since it is expected that using any MOR for the Suggitt process yields similar results.

The condition of the process can be found on column 4, lines 17-34.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suggitt (3,780,123) in view of Calabro et al (6,049,018)

Suggitt discloses a process as discussed above.

Suggitt does not disclose that the cumene is produced from an initial step of alkylating benzene with propylene and benzene is recycled to the alkylation step (see the entire patent to Suggitt for details). However, Calabro discloses an alkylation of benzene with propylene for production of cumene (col. 7, lines 26-32).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Suggitt process by incorporating the alkylation step of Calabro into the Suggitt process and using the cumene produced by the Calabro alkylation step since it is expected that using any source of cumene yield similar products.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Suggitt process having been incorporated with the alkylation of Calabro by recycling any benzene in the disproportionation product to the alkylation to increase the production.

Allowable Subject Matter

Claim 13 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of records do not disclose or render obvious a step of recycling a part of diisopropylbenzene to the reactor which produces it.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 703-305-2658. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-305-3599 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Thuan D. Dang
Primary Examiner
Art Unit 1764

918440511st
November 8, 2002

A handwritten signature in black ink, appearing to be 'Thuan D. Dang', written in a cursive style.